

ABSTRACT

The current study was aimed to quantitatively and qualitatively analyze the aqueous leaf extract of the plant *Ficus triangularis* to synthesize silver nanoparticles (AgNPs) in a green way. Ag-NPs were formed using the leaf extract that kept in dark for 1 day. *Ficus triangularis* was found to be a naturally abundant source of bioactive compounds, including phenols, flavonoids, tannins, terpenoids, saponins, sterols, alkaloids, reducing sugars, cardiac glycosides, and triterpenoids, according to phytochemical screening of the extract samples. The extraction of particular classes of compounds varied significantly depending on the solvent used. In order to investigate how using distilled water as a solvent affects the stability, shape, and reaction kinetics of silver-based nanoparticles, dark-mediated Ag-NPs were created from the plant extracts in the second section. Extracts diluted in distilled water were mixed with an aqueous solution of silver nitrate to produce the dark-mediated AgNPs. Fourier-transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), and ultraviolet-visible (UV-Vis) spectroscopy were used to verify the synthesis process. The UV-Vis spectroscopy, showed a peak at 430 nm. FTIR spectra demonstrated the role of phytochemicals in the stabilization and reduction of nanoparticles, The shape and size range of the synthesized AgNPs were demonstrated by SEM micrographs. The DPPH assay (2,2-diphenyl-1-picrylhydrazyl) was used to evaluate the antioxidant capacity of silver-based nanoparticles containing the plant extract that was left in the dark for a whole day. Using Augmentin as a standard, the well-diffusion method was used to assess the antibacterial efficacy of silver-based nanoparticles against gram-negative *Escherichia coli* and gram-positive *Bacillus subtilis*. The antibacterial activity of the one-day aqueous extracts of Ag nanoparticles was encouraging. Fluconazole 150 mg was used as a standard to test the antifungal activity of silver-based nanoparticles made from aqueous extracts against *Aspergillus Niger* employing the well-diffusion method.
